Long-Term Surveillance and Maintenance Program

Long-Term Surveillance Plan

for the

Site A/Plot M Sites
Palos Forest Preserve,
Cook County, Illinois

September 1999

Prepared by
U.S. Department of Energy
Grand Junction Office
Grand Junction, Colorado

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1.0 Introduction

1.1 Purpose

This Long-Term Surveillance Plan (LTSP) is a technical plan that explains how the U. S. Department of Energy (DOE) will fulfill its responsibilities as the long-term custodian of the Site A/Plot M radioactive waste disposal site in the Palos Forest Preserve, Cook County, Illinois.

1.2 Legal and Regulatory Requirements

The primary standard governing surveillance of Site A/Plot M is DOE Order 5400.5, "Radiation Protection of the Public and the Environment" (DOE 1990), which establishes a dose limit of 100 millirem (mrem) per year. The Environmental Protection Agency (EPA) drinking water standards found at 40 *U.S. Code of Federal Regulations* (CFR) Part 141 do not apply because the affected water supply (picnic water wells) do not meet the definition of a public water system (Golchert 1997). The Illinois EPA Class I Ground Water Quality Standard (GWQS) for tritium of 20,000 picoCuries per liter (pCi/L) is a useful contamination benchmark. Tritium has not exceeded this standard at the picnic water wells.

A Technical Review Committee (TRC) has been formed by interested parties including regulators, local landowners, Argonne National Laboratory, DOE, and the nearest village. Membership on this committee is voluntary. The TRC scrutinizes site status by reviewing annual monitoring reports and other relevant site considerations.

The Illinois Department of Nuclear Safety acts as an interested but unaffiliated third party and is available for consultation on site issues to the DOE.

1.3 Role of the Department of Energy

In 1988, the DOE designated the Grand Junction Office (GJO) to be the program office for long-term surveillance and maintenance of all DOE remedial action project disposal sites, as well as other sites as assigned, and to establish a common office for the security, surveillance, monitoring, and maintenance of these sites. The DOE established the Long-Term Surveillance and Maintenance (LTSM) Program at the GJO to carry out this responsibility.

The LTSM Program is responsible for the preparation, revision, and implementation of this LTSP, which includes site inspection, monitoring, and maintenance. The LTSM Program is also responsible for reporting the results of site inspections and monitoring, and for maintaining records pertaining to the site.

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2.0 Site Background Information

2.1 Description of Site Area

2.1.1 Location and Property Ownership

Site A and Plot M are located within the Palos Forest Preserve District of Cook County, Illinois, approximately 20 miles southwest of downtown Chicago and about 3 miles east of the current site of Argonne National Laboratory, as shown in Figure 2-1 (Biang et al. 1993). See also Plate 1. The sites were leased by the federal government from the owner, the Forest Preserve District of Cook County, from 1942 until 1956. In June 1997 when final removal actions were completed, an agreement between DOE and the Forest Preserve District returning Site A to the District was executed.

Approximately 8.2 million people reside within 50 miles of the site; the population within a 5-mile radius is about 150,000. The only portion of the Palos Forest Preserve in the immediate area of Site A/Plot M that is developed for public recreation is the Red Gate Woods picnic area, about 1,200 feet north of Plot M (Figure 2-2) (Golchert 1997). The area is not accessible by vehicle; however, there are several trails used for hiking, cross-country skiing, and horseback riding. These trails provide public access to Site A/Plot M (Biang et al. 1993).

Directions and mileage to the site are as follows:

Mile 0.0 - Argonne National Laboratory Main Gate (northeast side of facility, 9700 South Cass Avenue),

South on Cass Avenue until it dead ends on Bluff Avenue,

Left on Bluff Avenue,

Mile 2.0 - Right on Highway 83, Kingery Avenue,

Mile 3.0 - Across bridge and then left on Highway 171, Archer Avenue,

Mile 4.0 - Right turn up entrance road to Site A,

Mile 4.5 - Pass through two locked gates and follow gravel road about 1/2 mile to Site A,

Or

Mile 4.0 - Right turn to Red Gate Woods picnic area parking lot (200 yards east of Site A entrance),

From parking lot, walk south from southeast corner of lot to find trail leading to Plot M or drive up Site A road to top of hill and take first left, then turn left again after about 100 yards.

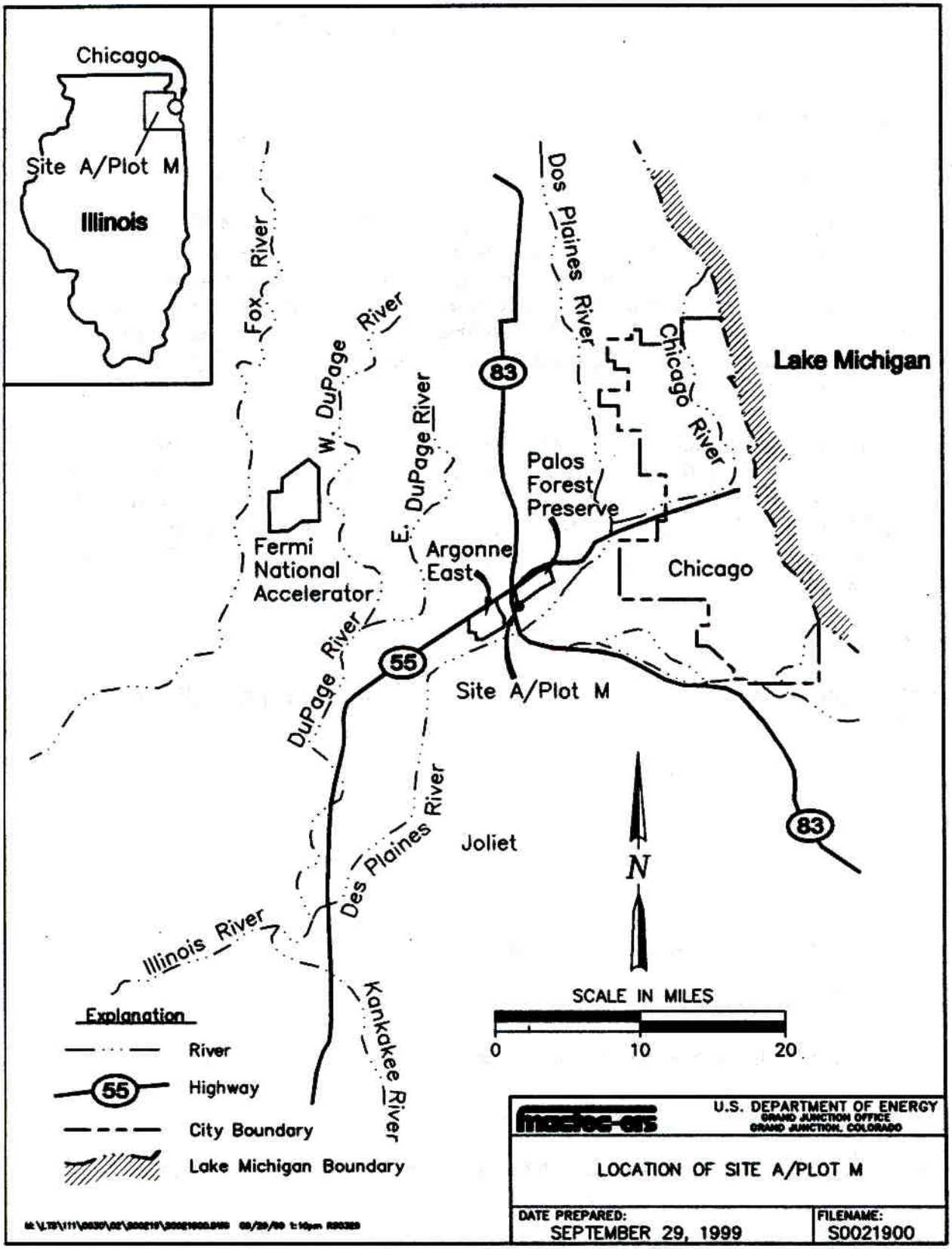

Figure 2-1. Location of Site A/Plot M Palos Forest Preserve, Cook County, Illinois

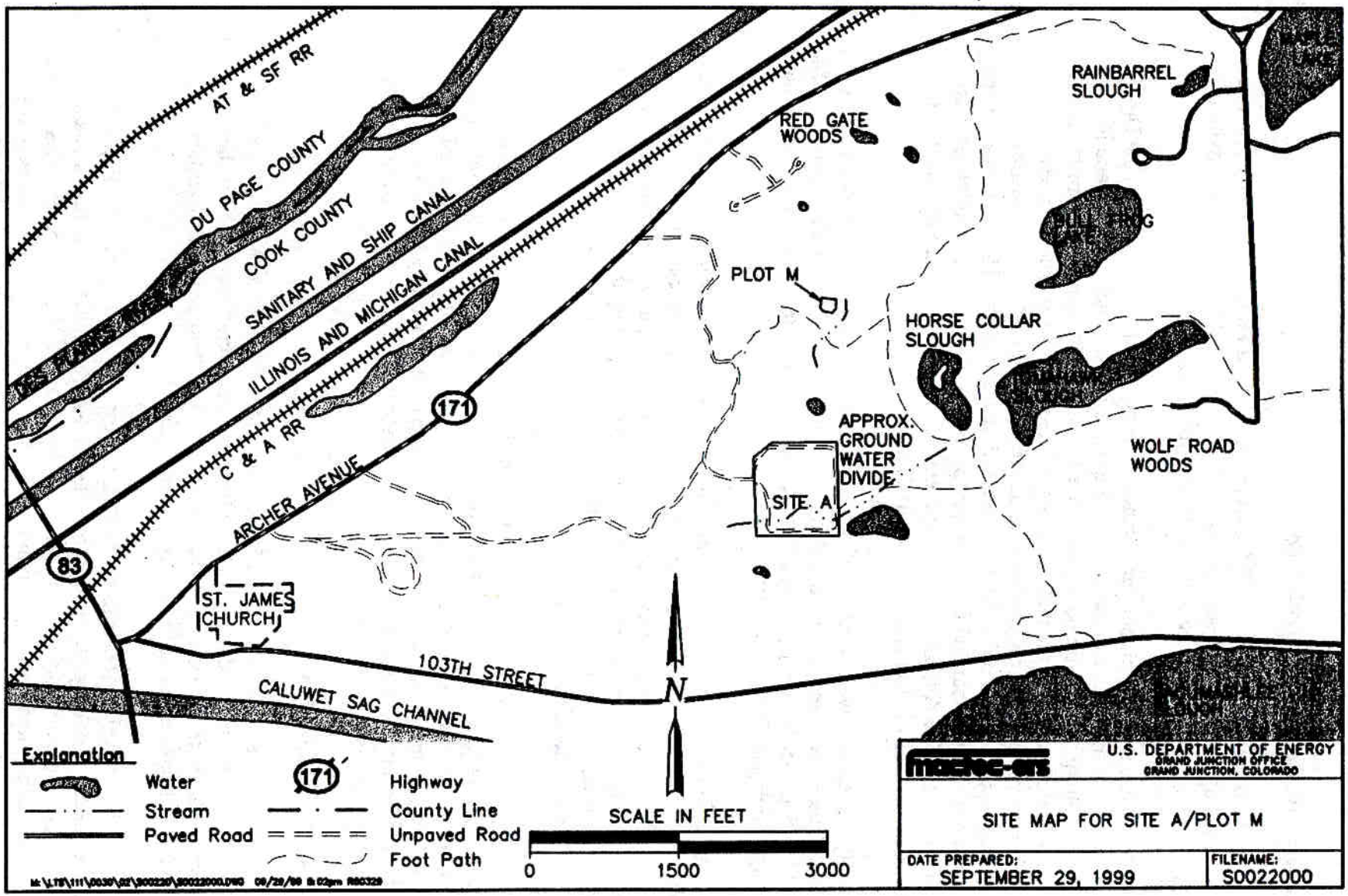

Figure 2-2. Site Map for Site A/Plot M at Palos Forest Preserve, Cook County, Illinois

2.1.2 Topography, Geology, and Hydrology

The Site A/Plot M location is within the 67,000-acre Palos Forest Preserve. Site A encompasses an area of 19 acres of forested, relatively flat terrain (IT 1996). Plot M, located approximately 1,600 feet north of Site A encompasses an area of less than 1 acre.

Site A/Plot M sits on a recessional moraine upland that is dissected by two valleys, the Des Plaines River valley to the north and the Calumet Sag valley to the south. The upland is characterized by rolling terrain with poorly developed drainage. Streams are intermittent and drain internally or flow to one of the valleys. Because the soil in the upland is rather impermeable, swamps and lakes are common in the area (Biang et al. 1993). The area is underlain by glacial till or drift, dolomite, and other sedimentary rocks. The uppermost bedrock is Silurian dolomite that is about 200 feet thick The overlying glacial till has a thickness that ranges from 165 feet at Site A to zero at the Des Plaines River and Calumet Sag Canal. The depth to bedrock at Plot M is 130 feet (Golchert 1997).

Hydrologically, the surface water consists of ponds and intermittent streams. When there is sufficient water, the intermittent stream that drains Plot M flows from the highest point near Site A, past Plot M, then continues near the Red Gate Woods well (Figure 2-3) and discharges into the Illinois and Michigan Canal (Golchert 1997).

The ground water in the glacial till and dolomite forms two distinct flow systems. The shallow system consists of a fairly continuous perched water regime. The high clay content in the soils makes this possible. The flow in the glacial till is controlled principally by topography. The flow in the second system, the dolomite aquifer, which is recharged by the ground water from the glacial till, is controlled by two discharge areas, the Des Plaines River to the north and the Calumet Sag Canal to the south (Golchert 1997).

The dolomite bedrock forms an unconfined aquifer and is a major bedrock aquifer in this area. It is the source for drinking water in the adjacent forest preserve. In the Red Gate Woods picnic area, the current water supply well (well 5160) is about 1,100 feet northwest of Plot M (Figure 2-4). Other water supply wells in the forest preserve are not likely to be in the migration pathway of contaminants from Site A/Plot M. Water usage in the area is confined to the hand-pumped picnic wells (Biang et al. 1993).

2.1.3 Climate and Vegetation

The climate is that of the upper Mississippi Valley, as moderated by Lake Michigan, and is characterized by cold winters and hot summers. Precipitation averages about 33 inches annually. The largest rainfalls occur between April and September. The average monthly temperature ranges from 21 °F in January to 73 °F in July (Golchert 1997).

The site lies within the Prairie Peninsula of the Oak-Hickory Forest Region. The Prairie Peninsula is a mosaic of oak forest, oak openings, and tall-grass prairie occurring in glaciated portions of Illinois, northwest Indiana, southern Wisconsin, and sections of other states. Much of the natural vegetation of this area has been modified by clearing and tillage. Forests in the region are somewhat limited to slopes of shallow, ill-defined ravines or low morainal ridges.

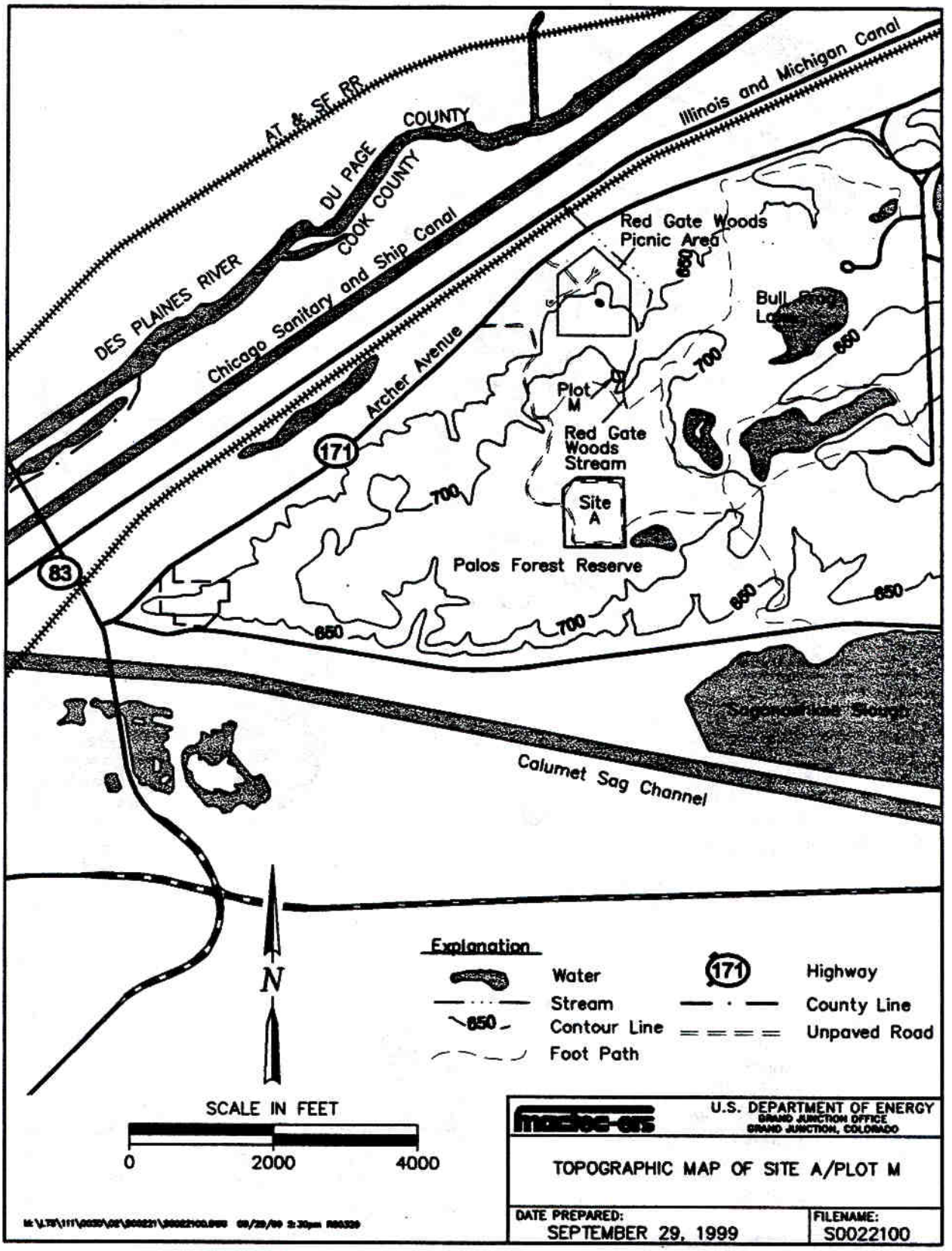

Figure 2-3. Topographic Map of Site A/Plot M Palos Forest Preserve, Cook County, Illinois

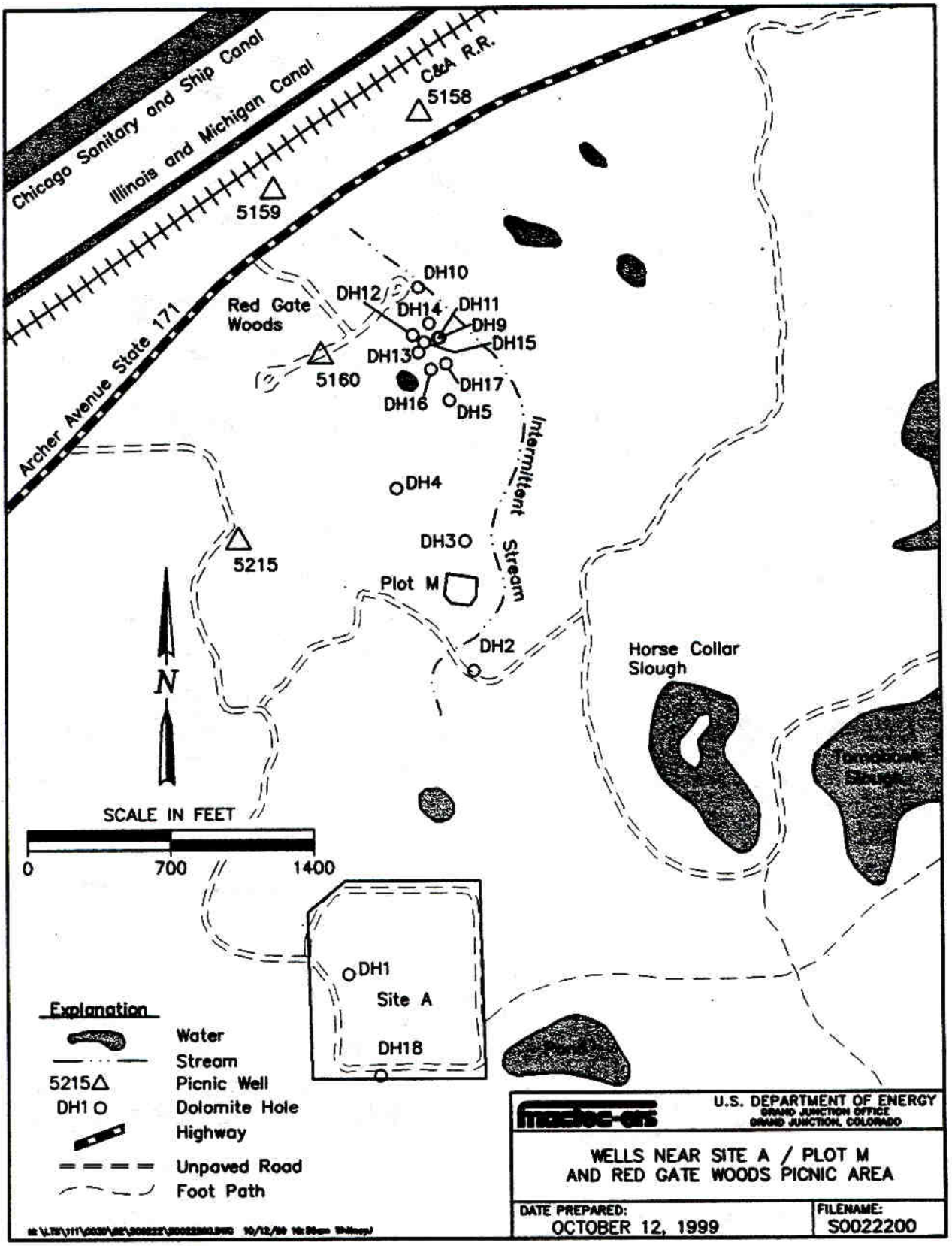

Figure 2-4. Dolomite Holes and Water Supply Wells Near Plot M at the Red Gate Woods Picnic Area

Gently rolling to flat intervening areas between ridges and ravines were predominantly occupied by prairie before their use for agriculture. The prevailing successional trend on these areas, in the absence of cultivation, is toward oak-hickory forest. Forests dominated by sugar maple, red oak, and basswood may occupy more pronounced slopes. Poorly drained areas, stream side communities, and flood plains may support forests dominated by silver maple, elm, and cottonwood (Golchert and Kolzow 1997).

2.2 Site History

The Site A/Plot M area is the former site of Argonne National Laboratory and its predecessor, the University of Chicago's Metallurgical Laboratory, which was part of the World War II Manhattan Engineer District Project, in the Palos Forest Preserve southwest of Chicago, Illinois. The Laboratory used two locations in the Palos Forest Preserve; Site A, a 19-acre area that contained experimental laboratories and nuclear reactor research facilities; and Plot M, a 150 foot by 140 foot area used for the burial of radioactive waste (Golchert 1997). These locations are shown in Figures 2-1 and 2-2.

Operations at Site A began in 1943 and ceased in 1954. Among the research programs carried out at Site A were reactor physics studies, fission product separations, tritium recovery from irradiated lithium, and studies of the metabolism of radionuclides in laboratory animals. Radioactive waste and radioactively contaminated laboratory articles from these studies were buried in Plot M. At the termination of the programs, the reactor fuel and heavy water, used for neutron moderation and reactor cooling, were removed and shipped to Oak Ridge National Laboratory. The biological shield for the CP-3 reactor, together with various pipes, valves, and building debris, were buried in place in 1956 (Golchert 1997). The CP-2 (a.k.a. CP-1) reactor shield is also buried at Site A (Biang et al. 1993).

Burial of radioactive waste at Plot M began in 1943 or 1944 and was discontinued in 1949. Waste was buried in 6-foot deep trenches and covered with soil until 1948; then burial took place in steel bins. The steel bins were removed in 1949 and sent to Oak Ridge National Laboratory for disposal, but the waste buried in trenches was allowed to remain in place. Both the Site A and Plot M areas were decommissioned in 1956. Concrete sidewalls 8 feet deep and 1.5 feet thick, were poured around the perimeter of the burial area and a 1-foot thick reinforced concrete slab was poured over the top. The concrete slab was covered with soil and seeded with grass (Golchert 1997).

In 1973, elevated levels of tritium were detected in two nearby hand-pumped picnic wells and the tritium was found to be migrating from the burial plot into the surrounding soil and ground water. Consequently, a radiological survey of the entire Palos Forest Preserve site was conducted with special emphasis on the Site A and Plot M areas (Golchert 1997).

2.3 Stabilization/Isolation Technique

Site A research activities ceased in May 1954, when the reactors were shut down. The CP-2 and CP-3 reactor shells were demolished and buried, and the support facilities and buildings were decontaminated and torn down (IT 1996). Uncontaminated materials were removed from the site, and arrangements were made to return the site to the Forest Preserve District.

An excavation approximately 100 feet across and 50 feet deep was prepared between the two reactors. The reactors themselves were approximately 180 feet apart. The buildings that housed the reactors were demolished and placed in the excavation. The 800-ton, concrete-filled, shell of the CP-3 reactor was buried by excavating around it on three sides and detonating strategically placed explosives in the earthen *"pedestal"* supporting it. The reactor shell slid into the excavation (Biang et al. 1993).

The concrete shield of CP-2 was demolished and pushed into the same excavation. The excavation containing the remains of CP-2 and CP-3 was then backfilled, leveled, and landscaped (Biang et al. 1993).

In 1996 a Limited Removal Action was conducted at Site A (IT 1996). Approximately 360 cubic yards (yd^3) of soil containing contaminant concentrations above background levels were removed and disposed of off site. Following removal of the contaminated soil, the excavated areas were backfilled with low permeability materials, covered with topsoil, and revegetated. Additionally the Milorganite Mounds, located within Site A, were leveled and covered with 8 inches of topsoil and revegetated.

In 1956 Plot M was stabilized and isolated by backfilling after waste burial and encasing the sides and top of the burial zone with concrete. The disposal area was surrounded by concrete walls 8 feet deep and 1.5 feet thick. A 1-foot thick concrete cap was placed over the top of the entire disposal area. The concrete was covered with 2 feet of soil, seeded with grass, and an inscribed granite marker was placed in the center of Plot M. The purpose of the concrete barrier was to prevent people from digging into the waste and to impede the flow of water through the buried radioactive materials (Biang et al. 1993).

2.4 Ground-Water Conditions

Data from the shallow wells (completed in the glacial till) adjacent to Plot M show that tritium levels fluctuate significantly with the seasons, from low in the spring to high in the fall and winter. The highest concentrations and largest seasonal variations are found in wells screened in soil underneath Plot M. Other shallow wells away from Plot M do not show dramatic seasonal variation in tritium concentrations (Biang et al. 1993). In 1996 tritium concentrations in the shallow wells ranged from below the detection limit to 9,400 nanoCuries per liter (Golchert 1997). The highest measured concentrations have significantly decreased since 1982 when the highest tritium concentrations were greater than 40,000 nanoCuries per liter.

More than 20 wells completed in the dolomite zone are being monitored regularly. Four of these wells are picnic wells, four are wells at private residences, and the others are part of the ANL-installed monitoring network. Two plumes with low levels of tritium have been identified in the dolomite aquifer (Biang et al. 1993). One is near Plot M and the other is near the picnic area. The highest tritium concentrations detected during the 1996 sampling were slightly less than 5 nanoCuries per liter. The highest tritium concentration detected in a functioning picnic well in 1996 was 2.2 nanoCuries per liter (Golchert 1997). None of the measured concentrations of tritium in the dolomite aquifer exceed the Illinois EPA Class I GWQS of 20 nanoCuries per liter.

3.0 Long-Term Surveillance Program

3.1 Environmental Monitoring/Inspections

Various parameters of the Site A/Plot M environment have been monitored to varying degrees since the site was decommissioned in 1956. Currently ground water, surface water, air, and stream sediments are being systematically monitored.

The current environmental monitoring program will be continued until the DOE, in consultation with stakeholders, deems it appropriate to modify the program based on trends in contaminant concentrations, changes in local land or ground-water use, regulatory requirements, or best management practices.

Additionally, in a general inspection of site conditions, the DOE will evaluate erosion, changes in vegetation, changes in local land use, evidence of subsidence, and other environmental parameters that the DOE deems necessary to monitor because of a potential for long-term impacts on site integrity.

The condition of monitor wells and boreholes will be evaluated for need of repair due to aging, vandalism, or any other process.

3.1.1 Air Monitoring

Air (water vapor) samples will be collected from two sampling locations above the intermittent stream that flows by Plot M. The sample points are designated as location 1 and location 9 on Figure 3-1. Location 1 is upstream from Plot M and location 9 is downstream. The samples will be collected twice per year with one sampling event in the spring and the other in the fall.

Five samples will be collected through a 4-day period at each location for a total of 10 samples for each sampling event. The air samples will be analyzed for tritium.

3.1.2 Surface Water Monitoring

Every other month (six times per year), surface water samples will be taken from the intermittent stream that flows past Plot M conditions permitting. Additionally, five ponds near Site A will be sampled annually.

Intermittent Stream Monitoring. Surface water samples will be taken from 12 locations along the intermittent stream, as shown in Figure 3-1. These samples will be analyzed for tritium concentrations. Large volume (20 liter) samples will be collected from sample points 1 and 9 during two of the sampling events, typically during a spring and late fall sampling event. These 20 liter samples (four annually) will be analyzed for the following parameters and isotopes in addition to tritium: total a; total 13; strontium-90; uranium-234 and -238; plutonium-238 and -239; and americium-241.

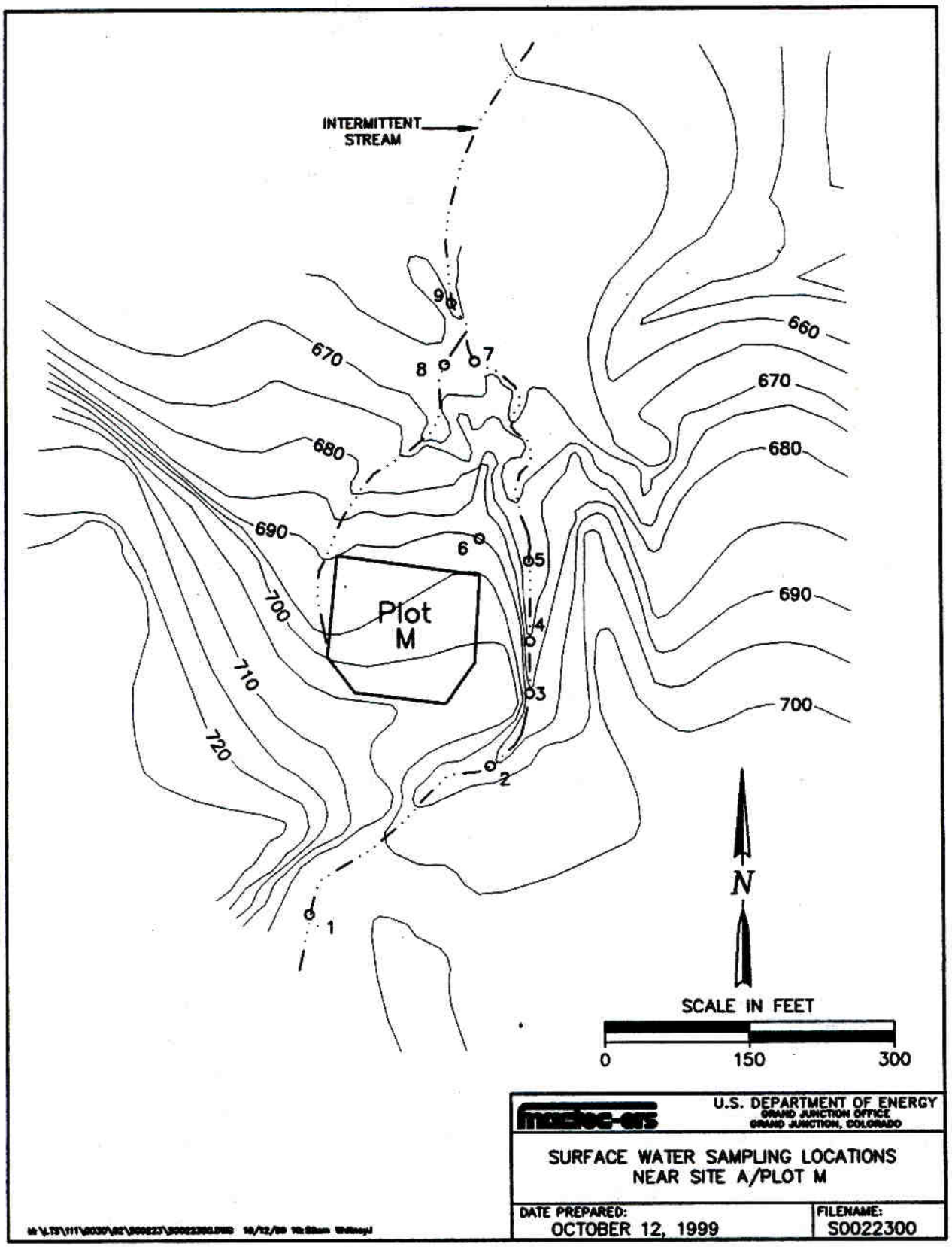

Figure 3-1. Surface Water Sampling Locations Near Site A/Plot M in Palos Forest Preserve in Cook County, Illinois

Pond Monitoring. The five ponds shown on Figure 3-2 will be sampled on an annual basis. The samples will be analyzed for tritium content. The five ponds are known by the following designations: pond northwest of Site A; pond southeast of Site A; Horse Collar Slough; Tomahawk Slough; and Bull Frog Lake.

3.1.3 Ground-Water Monitoring

Ground-water monitoring for SiteA/Plot M consists of sampling and analyzing two regimes. First, perched water regime is accessed through a series of cased boreholes, and second, an unconfined aquifer is accessed through wells completed to the Silurian Dolomite bedrock layer.

Perched Water Monitoring. Locations and designations for the borehole monitoring network used to sample the perched water regime are shown on Figures 3-3 and 3-4. The borehole monitoring network is further subdivided into Borehole Water-Plot M and Borehole Water-Site A.

Borehole Water-Plot M. Seventeen monitoring points will be sampled every other month (six times per year). These 17 monitoring points are designated as borehole numbers 1-6, 8-11, 24, 26, 28, 35, and 36, as shown on Figure 3-3. Borehole 11 has three sample points at three different depths. Boreholes 9 and 10 are slant holes drilled to sample directly below Plot M without breaching the concrete cover.

All samples will be analyzed for tritium content and water levels will be recorded for all monitoring locations. In addition to tritium analyses, samples from two of the six annual sampling events will be analyzed for strontium-90.

Borehole Water-Site A. Fifteen monitoring points will be samples quarterly (four times per year). These 15 monitoring points are designated as borehole numbers 419 42, and 44-56, as shown on Figure 3-4.

All samples will be analyzed for tritium, strontium-90, uranium-234 and 238, antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc. Also, water levels will be recorded for each monitoring point.

Unconfined Aquifer Monitoring. The monitoring network for the unconfined aquifer is divided into three subsets. These include the dolomite wells (which have been installed by DOE for monitoring purposes), the picnic wells (which have been installed by the Forest Preserve), and four private wells at nearby residences.

Dolomite Wells. There are 15 dolomite wells designated as DH-1 through DH-5 and DH-9 through DH-18. The locations of these wells are shown on Figure 3-5. These wells will be sampled quarterly (four times per year). All samples will be analyzed for tritium and water levels will be recorded for all wells. Additionally, samples obtained from wells DH-1 through DH-4 will be analyzed for a suite of volatile organic compounds.

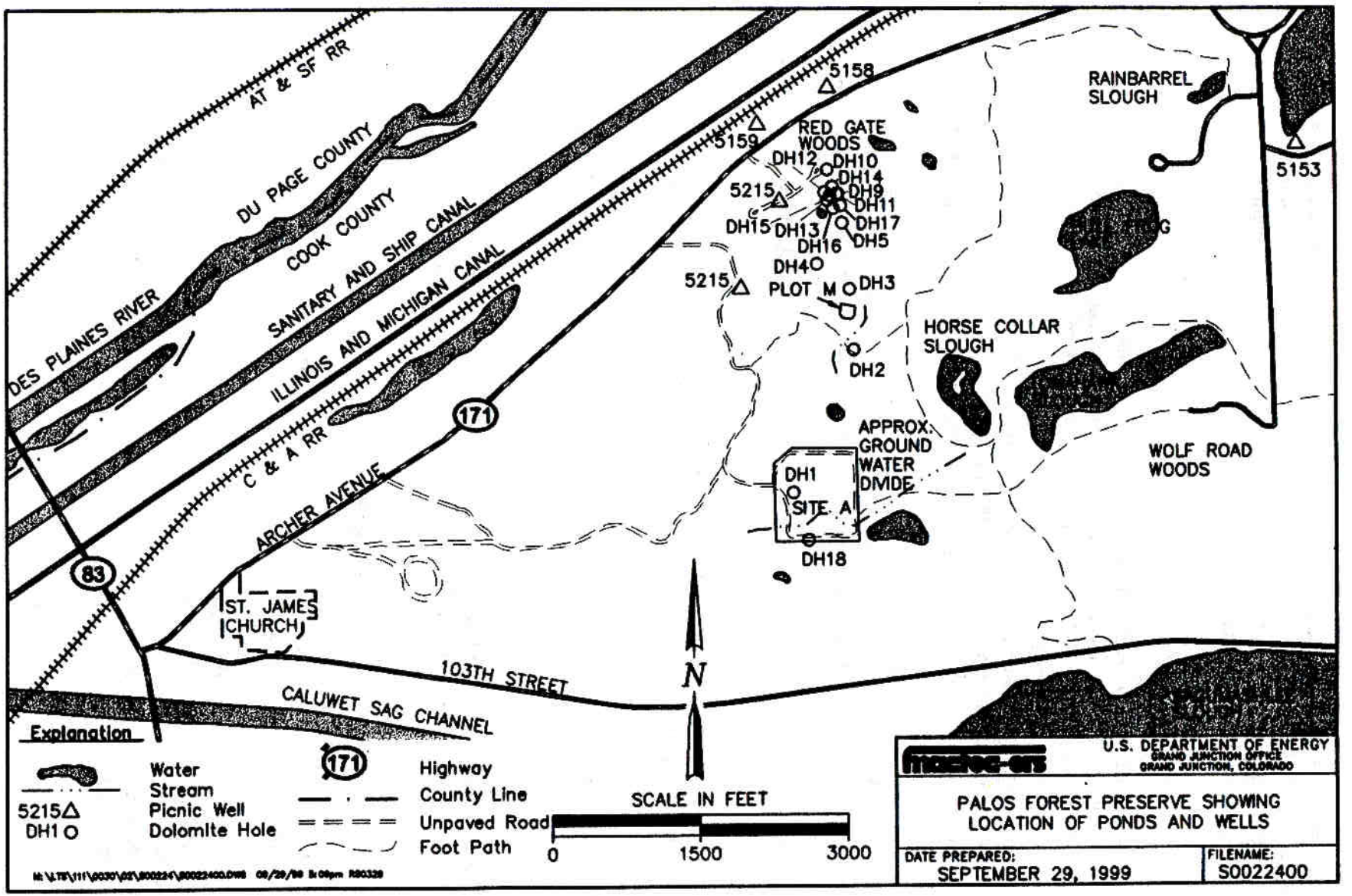

Figure 3-2. Palos Forest Preserve Showing Location of Ponds, Site A/Plot M Dolomite Holes, and Picnic Wells

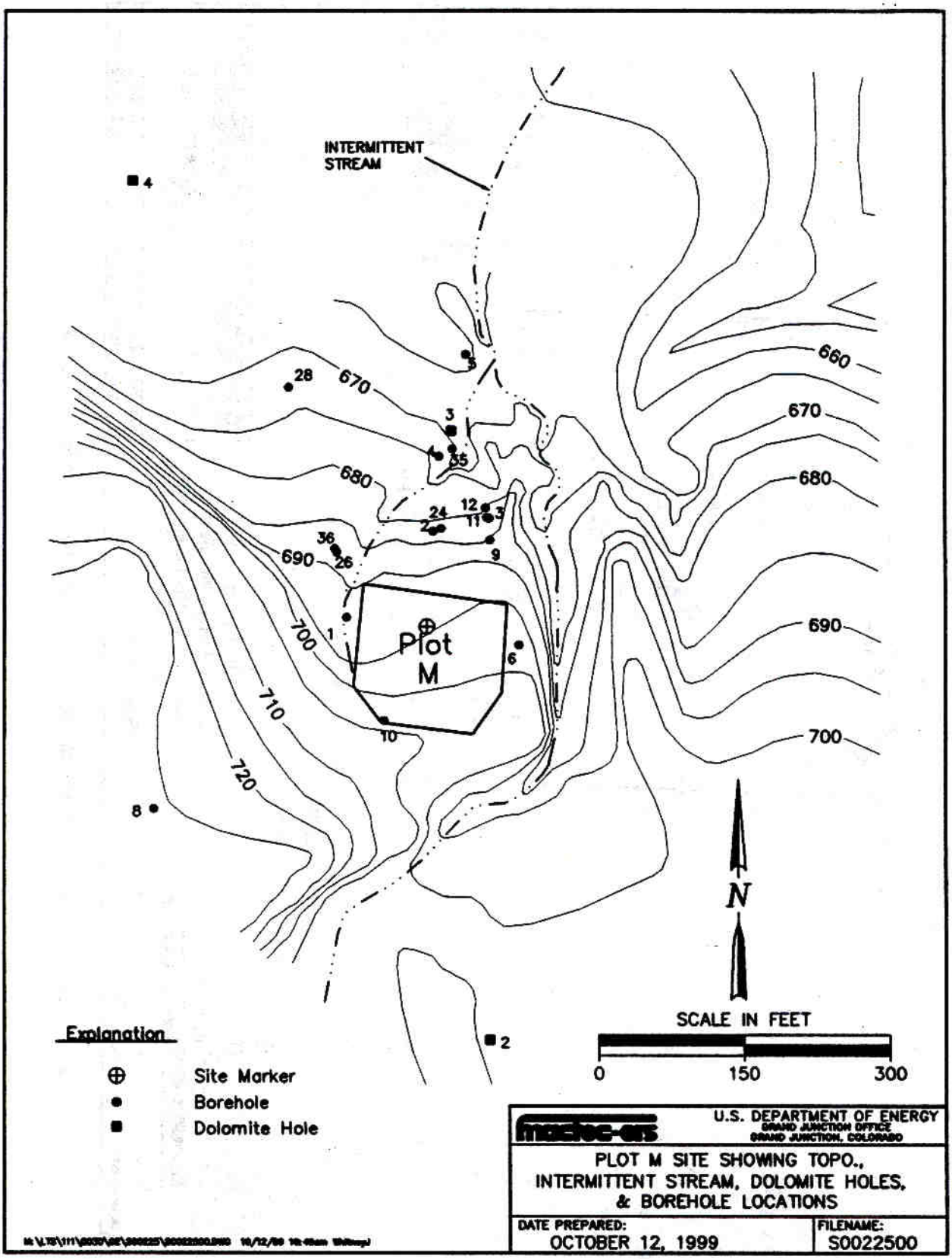

Figure 3-3. Map of Plot M Palos Site Showing Topography, Intermittent Stream, Dolomite Holes, and Borehole Locations

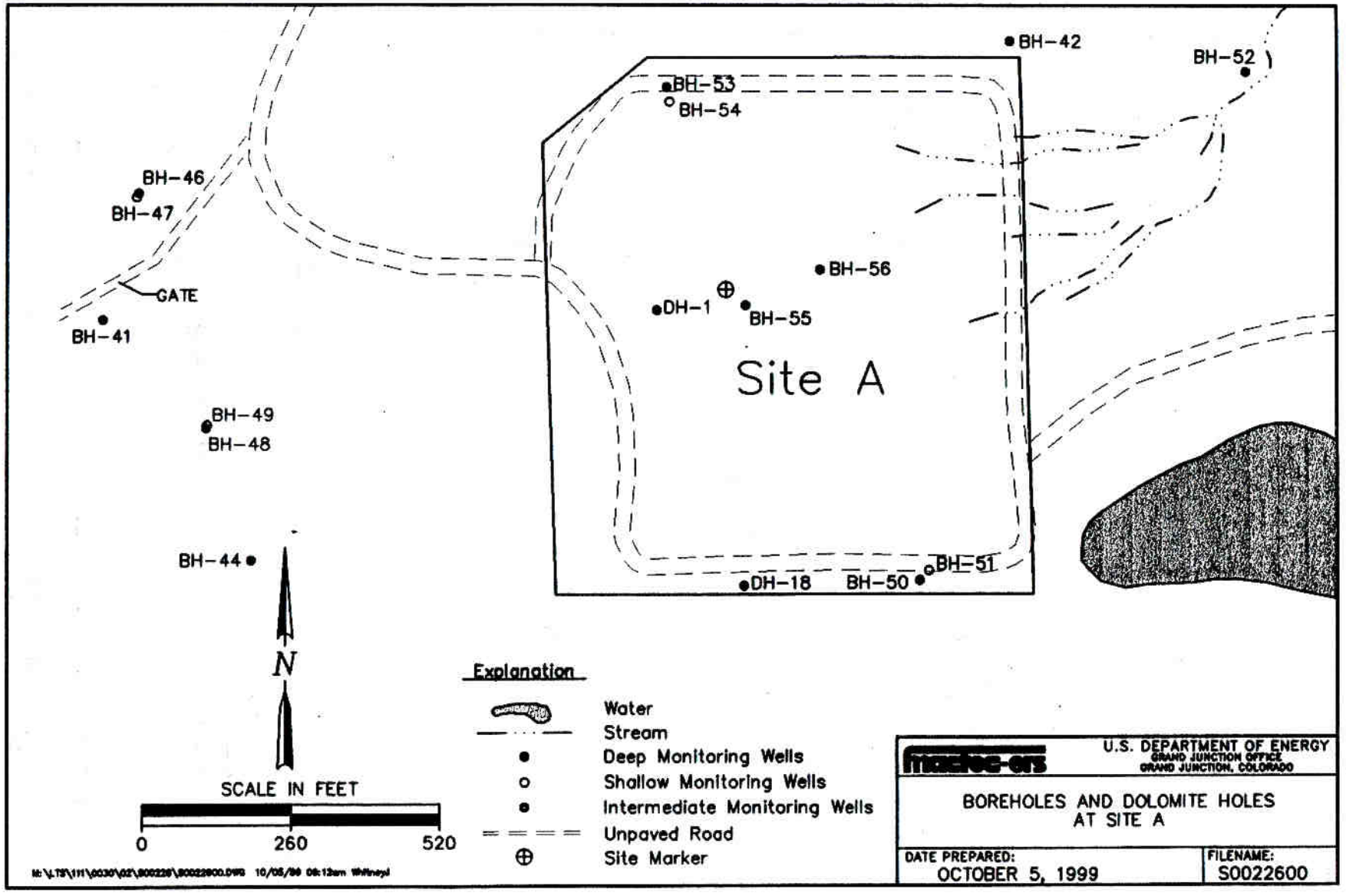

Figure 3-4. Boreholes and Dolomite Holes at Site A at Palos Forest Preserve, Cook County, Illinois

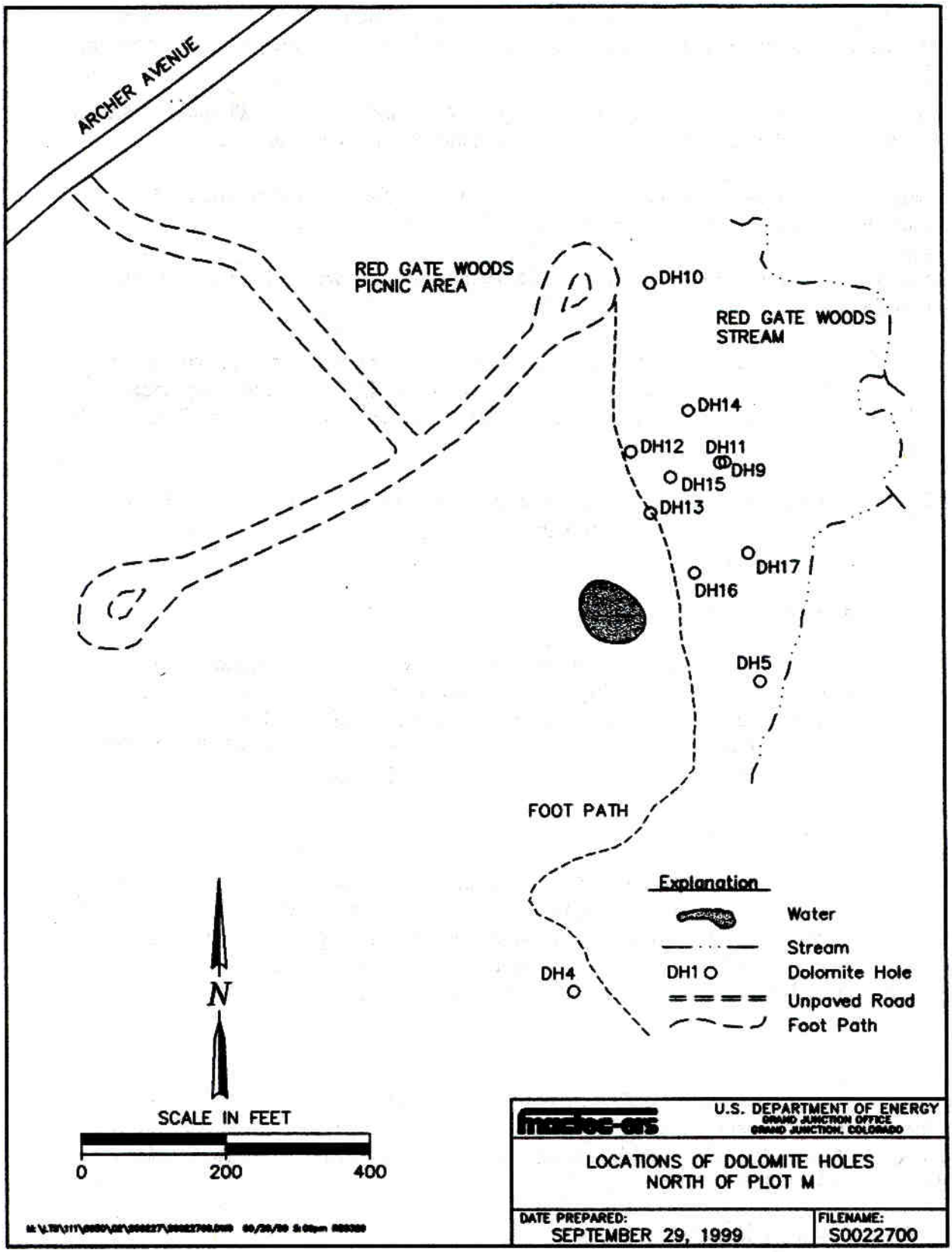

Figure 3-5. Location of Dolomite Holes North of Plot M in Palos Forest Preserve, Cook County, Illinois

Picnic Wells. There are four picnic wells that are part of the monitoring program. The wells are designated as numbers 5158, 5159, 5160, and 5215. The locations of the picnic wells are shown on Figure 3-2.

Picnic well numbers 5159 and 5160 will be sampled two times per month. Picnic well numbers 5158 and 5215 will be sampled once a month. All samples will be analyzed for tritium.

One sample per year from each picnic well will be analyzed for total alpha, total beta, strontium-90, plutonium-238 and -239, and americium-241.

Once per quarter (four times per year) a sample from each picnic well will be analyzed for uranium-234 and -238.

Once per quarter (four times per year) a sample from picnic well number 5160 will be analyzed for the following inorganic constituents: arsenic; barium; beryllium; cadmium; chloride; chromium; cobalt; copper; fluoride; iron; lead; manganese; mercury; nickel; ph; silver; sulfate; thallium; vanadium; and zinc.

Private Wells. Four wells that provide water for private residences near 107th and Archer Avenue will be sampled once per year and analyzed for tritium, gross alpha, gross beta, and gamma-ray emitting radionuclides.

3.1.4 Stream Sediment Monitoring

Stream sediment samples will be collected two times per year from two locations. The locations are designated as numbers 1 and 9 on Figure 3-3. These locations are the same as locations 1 and 9 for surface water and air sampling. These samples will be analyzed for the following constituents: potassium-40; strontium-90; cesium-137; radium-226; thorium-228 and -232; uranium-234 and -238; plutonium-238 and -239; and americium-241.

3.1.5 Erosion Monitoring

The annual inspection will include an evaluation of both on-site and adjacent off-site erosion, should any be occurring. Special attention will be given to situations where headcutting in the direction of the disposal site is noted. The local topography and vegetation is expected to keep erosion considerations at a minimum. However, off-site activities such as new construction can lead to changes in local drainage patterns and may bear evaluation.

3.1.6 Vegetation Monitoring

During annual inspections the condition of site vegetation will be assessed. Since vegetation is a primary deterrent to erosion, continued vegetation health is important. Additionally, inspectors will look for the development of deep-rooted species (trees) in places where the root structure could compromise waste isolation.

3.2 Monitoring/Inspection Reports

Surveillance and monitoring results will be recorded in an annual report. A copy of the report will be distributed to interested stakeholders such as the Technical Review Committee.

3.3 Maintenance, Repairs, Emergency Measures, and Ground-Water Corrective Actions

3.3.1 Custodial Maintenance

Custodial maintenance refers to routine activities that may be necessary to prevent long-term site degradation or deterioration from a public perception standpoint. Anticipated tasks such as grass mowing fall into this category. It is understood that the Palos Forest Preserve District, as landowner, is responsible for routine maintenance.

3.3.2 Repairs

Repairs represent actions that are more significant than maintenance tasks and may require formal engineering designs. Repairs include mitigation of modifying processes that could eventually compromise disposal site integrity. Damage to monitor well casings may require repairs or damaged disposal site security features may warrant repairs.

3.3.3 Emergency Measures

Emergency measures are the actions the DOE will take in response to "unusual damage or disruption" that threaten or compromise site safety, security, or integrity. The DOE will contain or prevent dispersal of radioactive materials in the unlikely event of an actual breach in site containment materials.

3.3.4 Ground-Water Corrective Actions

Should there be an exceedance of ground-water contaminant concentration standards, the DOE would first conduct confirmatory sampling. If confirmatory sampling verifies the exceedance, the DOE will initiate an evaluative monitoring program. Results of the evaluative monitoring program would be used to determine if corrective actions are necessary.

If corrective actions are necessary, the DOE will develop and implement a ground-water corrective action plan.

3.4 Records

The LTSM Program maintains site records in a permanent site file at the DOE-GJO. These records are available for inspection by government agencies or the public.

All LTSM Program records are maintained in full compliance with DOE requirements:

1. DOE Order 1324.2A, Records Disposition

2. DOE Order 1324.5, Records Management Program

3. DOE Order 1324.8, Rights and Interests Records Protection Program

4. DOE Order 5500.7B, Emergency Operating Records

3.5 Quality Assurance

The long-term custody of Site A/Plot M and all activities related to surveillance and maintenance of the site will comply with DOE Order 5700.6C, Quality Assurance (QA).

QA requirements will be transmitted through procurement documents to subcontractors when appropriate.

3.6 Health and Safety

Health and safety procedures for LTSM Program activities are consistent with DOE orders, regulations, codes, and standards.

Health and safety concerns specific to Site A/Plot M are listed in an inspection checklist. Also in the Health and Safety section of the inspection checklist are 24-hour emergency telephone numbers for fire, hospital, ambulance, police, and sheriff; directions from the site to the nearest hospital with an emergency room are also included. The checklist is updated before each inspection to advise on-site personnel of new and continuing health and safety considerations. A Job Safety Analysis is prepared before each inspection and is presented as part of a prerequisite-inspection briefing held several days before the site visit. At the briefing, personnel who will be on the site review the Job Safety Analysis and are instructed on hazards that may be present at the site and health and safety procedures that must be followed.

Subcontractors that may be retained for certain tasks, are advised of health and safety requirements through appropriate procurement documents. Subcontractors must submit health and safety plans for all actions subject to Occupational Safety and Health Administration requirements. Subcontractor health and safety plans will be reviewed and approved before the contract is awarded. Proposals from subcontractors without an adequate health and safety plan will be rejected.

4.0 References

Biang, R. P. et al., 1993. Environmental Review for Site A/Plot M, Palos Forest Preserve, Cook County, Illinois, ANL/EAIS/TM-99, Argonne National Laboratory, Argonne, Illinois, June 1993.

DOE (Department of Energy), 1990. Radiation Protection of the Public and the Environment, DOE Order 5400.5, February 8, 1990.

Golchert, N. W., 1997. Surveillance of Site A and Plot M Report for 1996, ANL-97/5, Argonne National Laboratory, Argonne, Illinois, May 1997.

Golchert, N. W. and R. G. Kolzow, 1997. Argonne National Laboratory-East Site Environmental Report for Calendar Year 1996, ANL-97/6, Argonne National Laboratory, Argonne, Illinois, September 1997.

IT, 1996 Draft Final Work Plan, U. S. Department of Energy, Limited Source Removal, Site A, Palos Forest Preserve, Cook County, Illinois, IT Corporation, September 1996.

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Appendix A

Field Photograph Log

Field Photograph Log

Site: _____ Roll No. ___ (of ___)

Date: _____

Frame	Azimuth	PL-Number	Subject/Description

Remarks:

Inspector/Photographer: _____

Site: _____ Roll No. ___ (of ___)

Date: _____

Frame	Azimuth	PL-Number	Subject/Description

Remarks:

Inspector/Photographer: _____

Appendix B

Initial Site Inspection Checklist

SITE STATUS REPORT (CHECKLIST)
and JOB SAFETY ANALYSIS
for
SITE A/PLOT M

Status of Site Inspections

Last Update of Status Report:	July 16, 1999
Last Annual Inspection:	NA
Inspectors	NA
Next Annual Inspection:	Week of July 26, 1999
Last Follow-Up Inspection:	None
Next Follow-Up Inspection:	None

Background

Site A/Plot M are located within the Palos Forest Preserve District of Cook County, Illinois. The site is the original location of Argonne National Laboratory, which has since been relocated. Site A is the burial site of a decommissioned reactor, and Plot M was a burial ground for wastes generated by site operations in the 1940s.

Issues and Issue Resolution

1. Borehole perched water monitoring locations are not well documented.

   Site A and Plot M each has 15 boreholes that are actively monitored.

   Boreholes associated with site A are numbered 41, 42, and 44-56.

   Boreholes associated with Plot M are numbered 1-6, 8-11, 24, 26, 28, 35, and 36.

   Resolution: Establish borehole locations with the GPS unit.

2. Ground-water monitor well locations are not well documented.

   There are 15 actively monitored dolomite wells numbered DH 1-DH 5, and DH 9-DH 18.

   There are 4 actively monitored picnic wells numbered 5158, 5159, 5160, and 5215.

   There are 4 actively monitored private wells.

   Resolution: Establish well locations with the GPS unit.

3. Surface water sampling locations are not well documented.

   There are 12 sampling locations on the intermittent stream by Plot M.

   There are 5 ponds that are sampled near Site A. The ponds are designated as follows: Pond northwest of Site A; Pond southeast of Site A; Horse Collar Slough; Tomahawk Slough; Bull Frog Lake.

   Resolution: Establish surface water sampling locations with the GPS unit.

4. The configuration and position of Site A is not represented adequately on existing drawings.

   Resolution: Establish configuration and position of Site A with the GPS unit.

5. The configuration and position of Plot M is not represented adequately on existing drawings.

   Resolution: Establish configuration and position of Plot M with the GPS unit.